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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHEN, BRET P	
ART UNIT	PAPER NUMBER
1792	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,758	SNEH, OFER	
	Examiner	Art Unit	
	Bret Chen	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-10, 12 are pending in this application. Amended claims 1-3, 5-6, 8, 10 and canceled claim 11 are noted.

The amendment dated 3/27/09 has been entered and carefully considered. The examiner appreciates the amendments to the specification and claims. In view of said amendments, the objection to the specification, the 112 rejection, and the previous art rejection have been withdrawn.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson (5,871,805).

Lemelson discloses an adaptive computer control of chemical vapor deposition (CVD) processes and physical vapor deposition (PVD) processes (such as electron beam physical vapor deposition, EBPVD), using real-time thickness monitoring and 3D geometric modeling combined with thermochemical modeling of the coating process, to optimize coating performance (col.1 lines 5-11) in which feedback signals are generated and used to adjust key operating conditions of the coating process, which may include temperature, pressure, reactant flowrates and composition and the like (col.4 line 52 – col.5 line 2). The apparatus of Lemelson includes a deposition chamber 3, a chemical to be vaporized by vaporizer 9 and a temperature controller 5, and optical sensors 24 (col.5 lines 48-65, col.7 lines 26-40 and Figure 1). The

sensors our protected from the reactant gases and hence are out of line-of-sight (col.5 lines 48-65). However, the reference fails to specifically teach the sensor is electrically connected to the heat controller.

It is noted that a sensor is utilized to measure coating thickness by vibrating piezoelectric transducer, visible fluorescence, laser interferometry, or infrared ellipsometry (col.5 line 66 – col.7 line 25). The measured response is used to vary the processing parameters including temperature accordingly (col.9 line 9 – col.10 line 25 and Figure 3). One skilled in the art would realize the benefit of electrically connecting the sensor to the heat controller with the expectation of obtaining better and quicker control.

Regarding claim 3, Lemelson teaches gas valves 15, 23 and pressure sensor 6 and pressure regulators 16 (col.7 lines 26-39 and Figure 1).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson (5,871,805) in view of Hillman (6,409,837).

Lemelson teaches a method of measuring thickness and varying temperature as noted above. However, the reference fails to teach reducing condensation.

Hillman teaches the conventionality of using a temperature control system to reduce condensation on the walls (col.11 lines 1-25). It would have been obvious to incorporate a chamber wall temperature control system in the apparatus of Lemelson with the expectation of removing condensation from the chamber walls.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson (5,871,805) in view of Ratner et al. (5,153,072).

Lemelson teaches a method of measuring thickness and varying temperature as noted above. However, the reference fails to teach an etch gas.

Ratner discloses a method of controlling chemical structure of polymeric films in which the chamber pressure can be higher than the saturation vapor pressure depending on a precursor's boiling point (col.9 line 17 - col.10 line 3). An etching gas is utilized (col.13 line 67 – col.14 line 46). It would have been obvious to utilize the etching gas in Lemelson with the expectation of obtaining similar results because Ratner teaches the conventionality of using same.

Regarding claim 5, Lemelson teaches a YSZ ingot (col.3 lines 53-67).

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson (5,871,805) in view of Endo et al. (2002/0172768).

Lemelson teaches a method of measuring thickness and varying temperature as noted above. However, the reference fails to teach ALD.

It is noted that the rejection is over apparatus claims not method claims. The prior art only has to provide a structure that is capable of performing in the manner claimed and not necessarily have ever been intended to be used in this manner. As such, it is the examiner's position that Lemelson meets the limitations of the instant claims.

Regardless, Endo teaches that CVD and ALD are similar processes albeit ALD is used to stack monoatomic layers (0008). It would have been obvious to utilize an ALD process in the apparatus of Marcus with the expectation of success.

Claims 8, 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson (5,871,805) in view of Sherman (6,342,277) and Ratner et al. (5,153,072).

Lemelson discloses an adaptive computer control of chemical vapor deposition (CVD) processes and physical vapor deposition (PVD) processes (such as electron beam physical vapor deposition, EBPVD), using real-time thickness monitoring and 3D geometric modeling combined with thermochemical modeling of the coating process, to optimize coating performance (col.1 lines 5-11) in which feedback signals are generated and used to adjust key operating conditions of the coating process, which may include temperature, pressure, reactant flowrates and composition and the like (col.4 line 52 – col.5 line 2). During deposition, the coating thickness is measured using a vibrating piezoelectric transducer, visible fluorescence, laser interferometry, or infrared ellipsometry (col.5 line 66 – col.7 line 5) using optical sensors (col.7 lines 10-25) as well as pressure and temperature sensors (col.7 lines 26-40). These measurements are then compared to mathematical models (col.7 line 66 – col. 8 line 43) and used to vary the processing parameters accordingly (col.9 line 9 – col.10 line 25 and Figure 3). One of the operating conditions which can be varied is the vapor pressure of the vaporized material (col.13 line 55 – col.14 line 7). The apparatus of Lemelson includes a deposition chamber 3, a chemical to be vaporized by vaporizer 9 and a temperature controller 5, and optical sensors 24 (col.5 lines 48-65, col.7 lines 26-40 and Figure 1). The sensors our protected from the reactant gases and hence are out of line-of-sight (col.5 lines 48-65). However, the reference fails to specifically teach controlling temperature to control the vapor pressure.

Sherman discloses a method for sequential chemical vapor deposition process for employing a reactor at low temperatures (abstract) in which one controls the temperature of the

material source using temperature controller 32 to affect the vapor pressure (col.5 line 54 – col.6 line 5). It is noted that Lemelson teaches of measuring thickness and varying process parameters such as temperature and vapor pressure of the deposition process. Sherman teaches the relationship of temperature with respect to vapor pressure. It would have been obvious to vary temperature in Lemelson to affect the vapor pressure because Sherman teaches that affecting the source temperature affects the vapor pressure.

In addition, Lemelson and Sherman fail to teach a total pressure greater than the vapor pressure of the chemical. Ratner discloses a method of controlling chemical structure of polymeric films in which the chamber pressure can be higher than the saturation vapor pressure depending on a precursor's boiling point (col.9 line 17 - col.10 line 3). It would have been obvious to utilize a chamber pressure higher than the vapor pressure of the chemical in the process of Lemelson and Sherman depending on the precursor because Ratner teaches the conventionality of varying pressure depending on the specific precursor.

Regarding claim 10, Lemelson teaches of controlling the temperature of the sensor (col.5 lines 48-65).

Regarding claim 12, Ratner teaches an etching gas (col.13 line 67 – col.14 line 46).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson (5,871,805) in view of Sherman (6,342,277) and Ratner et al. (5,153,072) and further in view of Hillman (6,409,837).

The combination of Lemelson/Sherman/Ratner teaches a method of measuring thickness and varying temperature to affect vapor pressure when the total pressure is greater than the vapor

pressure of the chemical as noted above. However, the reference fails to teach reducing condensation.

Hillman teaches the conventionality of using a temperature control system to reduce condensation on the walls (col.11 lines 1-25). It is noted that Lemelson teaches of controlling the temperature of the sensor (col.5 lines 48-65). It would have been obvious to utilize the temperature controller of Lemelson with the expectation of reducing condensation because Hillman teaches that controlling temperature can be utilized to remove condensation.

Response to Arguments

Applicant's arguments with respect to claims above have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bret Chen whose telephone number is (571)272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bret Chen/
Primary Examiner, Art Unit 1792
6/18/09